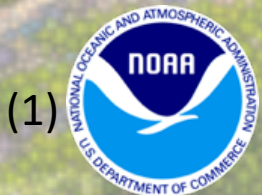


The Study of Precipitation, the Lower-Atmosphere and Surface for Hydrometeorology (SPLASH)

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SPLASH Science

Clouds and Precipitation:

- Quantitative Precipitation Estimation (QPE)
- Snow level and drivers
- Precipitation Microphysics
- Convective Initiation
- Rain-on-snow events

Surface Properties:

- Snow cover
- Sublimation of surface snow
- Surface Albedo
- Soil Moisture
- Surface-atmosphere exchange and impact on hydrology



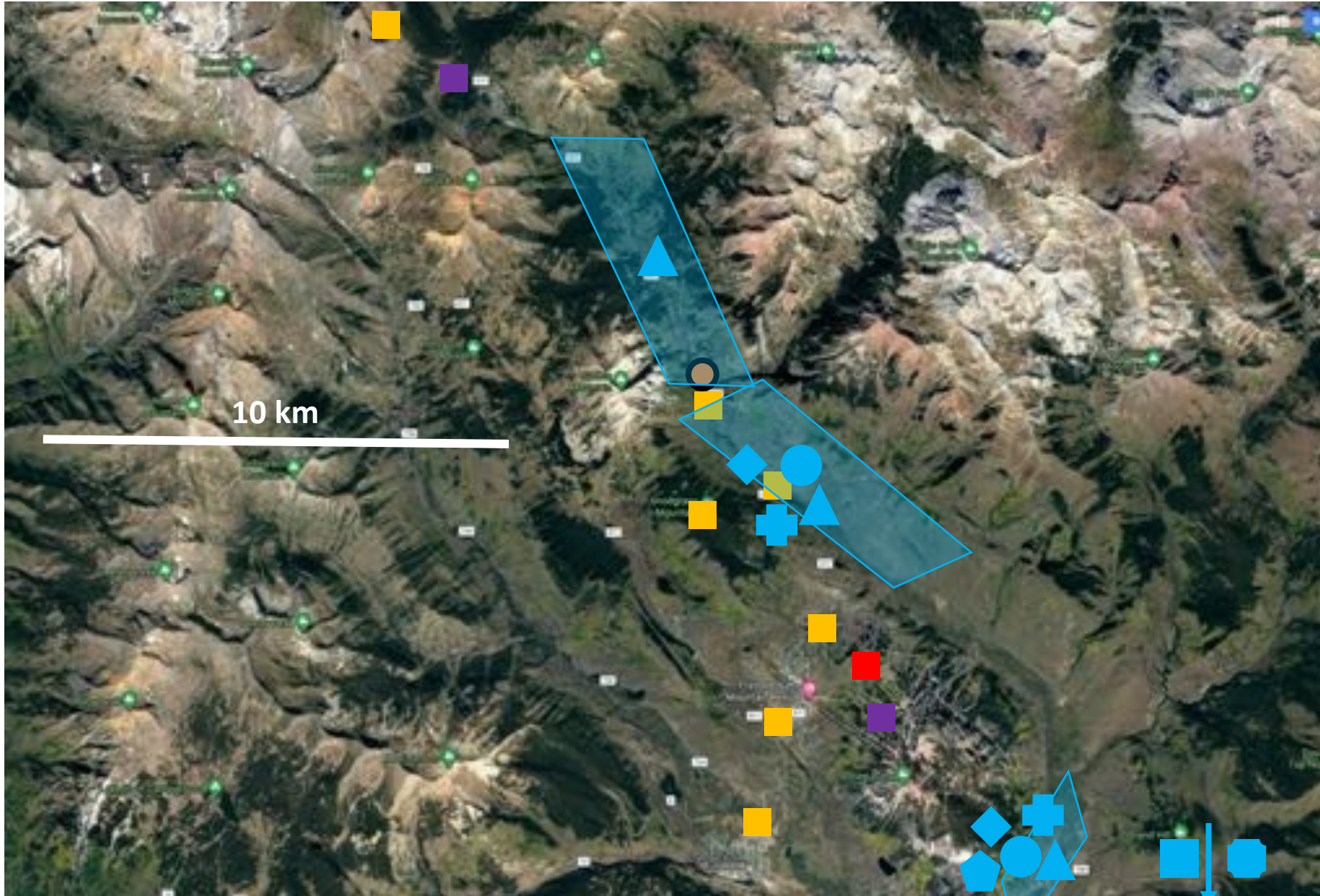
Mountain Weather:

- Orographic flows
- Diurnal circulations for renewable energy
- Boundary layer development

Improving Prediction:

- Seasonal evolution of snowpack in the NWM
- NWM forcing, including precipitation
- Seasonal streamflow biases
- Soil moisture variability
- Improving convective initiation with DA
- UFS-NWM coupling
- UFS/RRFS evaluation
- Gap-filling radars

SPLASH Concept



Existing Infrastructure

■ SNOTEL

■ Existing surface Met

Sep 2021-May 2023 (SAIL)

● DOE AMF-2

■ DOE-funded X-band

Sep 2021-Aug 2022 (SPLASH)

■ Second X-band

● Snow Level Radar

▲ Surface Flux Stations

◆ CLAMPS

▮ UAS Operations Areas

⊕ Surface precip gauges

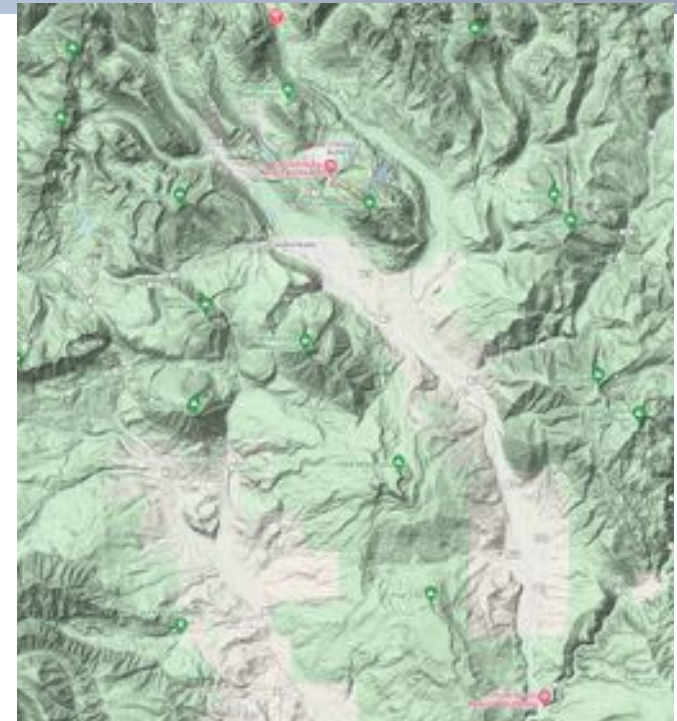
◆ Disdrometers

⊕ ASSIST and MWR

Sites: Avery Picnic



- Remote site in northern portion of the valley
- Very limited traffic in winter months
- Atmospheric Surface Flux Station (remote at KP Annex) with soil moisture
- UAS for surface (snow, albedo, soil moisture) and lower atmospheric mapping **



Sites: Kettle Ponds



- Large open area in valley between Gothic and Mt. CB
- Second “Annex” site in addition to primary site (~200 m apart)
- Snow Level Radar and disdrometer
- Surface energy budget tower
- Radiation
- Atmospheric Surface Flux Station (remote at KP Annex) with soil moisture
- UAS for surface (snow, albedo, soil moisture) and lower atmospheric mapping **

ARM/ASR PI Meeting – SAIL/SPLASH Breakout – 23 June 2021



Sites: Brush Creek



- Just south of Mt. CB. Within sight of the 2nd X-band radar
- Increased solar exposure over northern sites
- Snow Level Radar and disdrometer
- Surface energy budget tower
- Radiation
- SURFRAD site
- CLAMPS Trailer (Fall 2020 only)
- UAS for surface (snow, albedo, soil moisture) and lower atmospheric mapping **

ARM/ASR PI Meeting – SAIL/SPLASH Breakout – 23 June 2021



Sites: Roaring Judy



- Between Crested Butte and Gunnison
- Some blockage from terrain, but general perspectives on northern half of the valley and over the Taylor Reservoir to the east
- X-band scanning radar

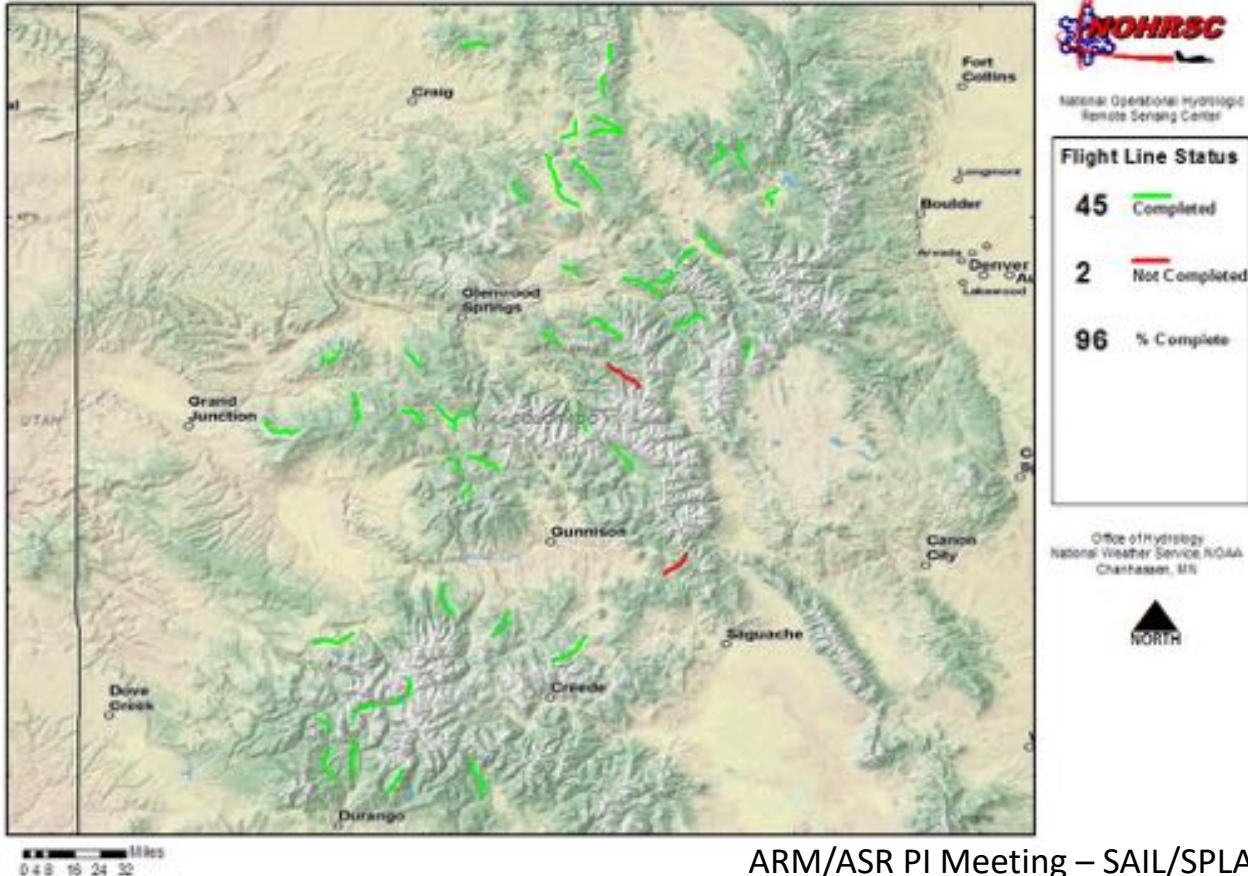


NOHRSC Snow Survey



Status of Colorado Snow Survey #2
March 28, 2010 to March 29, 2010

NOHRSC Snow Survey



Outreach



Opportunities:

- Community Day
- Student mentorship through Hollings and RECCS programs
- Development of collaborations with local institutes
- Gunnison Watershed RE-1J School District Summer Experience
- CIRES connections to 4-H and Girl Scouts
- Community engagement through Crested Butte Resort

SPLASH Status and What's Next



General: In partnership with the US DOE and other partners, SPLASH aims to leverage NOAA observational and scientific research infrastructure foster improved prediction of weather and water over complex terrain.

Team:

- NOAA PSL, with contributions from GML, GSL, ARL, NSSL, NOHRSC, NOAA AOC, CU, CSU, NCAR, industry and the DOE SAIL team
- *In search of: Additional enthusiastic contributors and collaborators*

NOAA and Outside Stakeholders:

- NWS (CBRFC, GJT WFO)
- ASRE program
- DOE Earth and Environmental Systems Science program
- *In search of: Additional stakeholders in NOAA and beyond*

Funding:

- NOAA labs, with a contribution from the ASRE program, are supporting deployment of some observing assets, and science/analysis to support UFS and NWM advancement
- NOAA WPO proposal recommended for funding to support NWS interface, UAS DA studies, and limited UAS deployments
- *In search of: Additional support for deployment of UAS platforms and analysis of data*